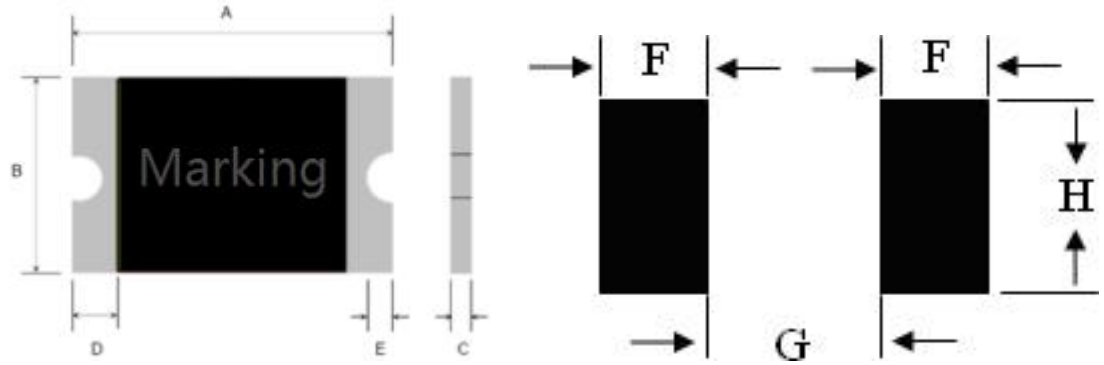
PPTC SMD1210L Series Surface-mount Devices

Features:

- RoHS Compliant ＆ Halogen Free
- Faster tripping, 1210 Dimension, Surface mountable, Solid state
- Maximum Voltage：6V/12Vdc
- Operating Current: 1.5A~7.5A，
- Operating Temperature：-40℃~ 85℃

Product Dimensions



Unit ： mm

Model	Dimensions（mm）							
	A(min)	A(max)	B(min)	B(max)	C(min)	C(max)	D(min)	E(min)
SMD1210L-150-6V	3.0	3.43	2.35	2.8	0.3	0.7	0.25	0.1
SMD1210L-150-12V	3.0	3.43	2.35	2.8	0.3	0.7	0.25	0.1
SMD1210L-175-6V	3.0	3.43	2.35	2.8	0.3	0.7	0.25	0.1
SMD1210L-175-12V	3.0	3.43	2.35	2.8	0.3	0.7	0.25	0.1
SMD1210L-190-6V	3.0	3.43	2.35	2.8	0.3	0.7	0.25	0.1
SMD1210L-190-12	3.0	3.43	2.35	2.8	0.3	0.7	0.25	0.1
SMD1210L-200-6V	3.0	3.43	2.35	2.8	0.3	0.7	0.25	0.1
SMD1210L-200L-12	3.0	3.43	2.35	2.8	0.3	0.7	0.25	0.1
SMD1210L-260-6V	3.0	3.43	2.35	2.8	0.4	1.0	0.25	0.1
SMD1210L-260-12	3.0	3.43	2.35	2.8	0.4	1.0	0.25	0.1
SMD1210L-300-6V	3.0	3.43	2.35	2.8	0.4	1.0	0.25	0.1
SMD1210L-300-12	3.0	3.43	2.35	2.8	0.4	1.0	0.25	0.1
SMD1210L-350-6V	3.0	3.43	2.35	2.8	0.4	1.2	0.25	0.1
SMD1210L-350-12	3.0	3.43	2.35	2.8	0.4	1.2	0.25	0.1
SMD1210L-380-6V	3.0	3.43	2.35	2.8	0.4	1.2	0.25	0.1
SMD1210L-380-12	3.0	3.43	2.35	2.8	0.4	1.2	0.25	0.1
SMD1210L-400-6V	3.0	3.43	2.35	2.8	0.5	1.2	0.25	0.1
SMD1210L-400-12	3.0	3.43	2.35	2.8	0.5	1.2	0.25	0.1
SMD1210L-450-6V	3.0	3.43	2.35	2.8	0.5	1.4	0.25	0.1
SMD1210L-450-12	3.0	3.43	2.35	2.8	0.5	1.4	0.25	0.1

SMD1210L-500-6V	3.0	3.43	2.35	2.8	0.5	1.4	0.25	0.1
SMD1210L-500-12	3.0	3.43	2.35	2.8	0.5	1.4	0.25	0.1
SMD1210L-550-6V	3.0	3.43	2.35	2.8	0.5	1.4	0.25	0.1
SMD1210L-550-12	3.0	3.43	2.35	2.8	0.5	1.4	0.25	0.1
SMD1210L-600-6V	3.0	3.43	2.35	2.8	0.5	1.6	0.25	0.1
SMD1210L-600-12	3.0	3.43	2.35	2.8	0.5	1.6	0.25	0.1
SMD1210L-650-6V	3.0	3.43	2.35	2.8	0.5	1.6	0.25	0.1
SMD1210L-650-12	3.0	3.43	2.35	2.8	0.5	1.6	0.25	0.1
SMD1210L-700-6V	3.0	3.43	2.35	2.8	0.5	1.6	0.25	0.1
SMD1210L-700-12	3.0	3.43	2.35	2.8	0.5	1.6	0.25	0.1
SMD1210L-750-6V	3.0	3.43	2.35	2.8	0.5	1.6	0.25	0.1
SMD1210L-750-12	3.0	3.43	2.35	2.8	0.5	1.6	0.25	0.1

Recommended Solder Pad Layout Dimensions (mm)

Device	F	G	H
	Normal Value	Normal Value	Normal Value
1210L Series	1	2	2.5

Thermal Derating Chart-IH（A）

Model	Maximum ambient operating temperatures（℃）								
	-40	-20	0	25	40	50	60	70	85
SMD1210L-150-6V	2.25	2.00	1.75	1.50	1.33	1.15	1.05	0.93	0.70
SMD1210L-150-12V	2.25	2.00	1.75	1.50	1.33	1.15	1.05	0.93	0.70
SMD1210L-175-6V	2.55	2.33	2.02	1.75	1.53	1.35	1.23	1.07	0.85
SMD1210L-175-12V	2.55	2.33	2.02	1.75	1.53	1.35	1.23	1.07	0.85
SMD1210L-190-6V	2.81	2.53	2.20	1.90	1.67	1.47	1.34	1.17	0.91
SMD1210L-190-12	2.81	2.53	2.20	1.90	1.67	1.47	1.34	1.17	0.91
SMD1210L-200-6V	2.96	2.67	2.32	2.00	1.76	1.55	1.41	1.23	0.96
SMD1210L-200L-12	2.96	2.67	2.32	2.00	1.76	1.55	1.41	1.23	0.96
SMD1210L-260-6V	3.85	3.47	3.02	2.60	2.29	2.01	1.84	1.59	1.25
SMD1210L-260-12	3.85	3.47	3.02	2.60	2.29	2.01	1.84	1.59	1.25
SMD1210L-300-6V	4.40	3.98	3.45	3.00	2.64	2.30	2.15	1.83	1.42
SMD1210L-300-12	4.40	3.98	3.45	3.00	2.64	2.30	2.15	1.83	1.42
SMD1210L-350-6V	5.18	4.67	4.06	3.50	3.08	2.71	2.47	2.15	1.68
SMD1210L-350-12	5.18	4.67	4.06	3.50	3.08	2.71	2.47	2.15	1.68
SMD1210L-380-6V	5.55	5.02	4.35	3.80	3.32	2.92	2.65	2.30	1.81
SMD1210L-380-12	5.55	5.02	4.35	3.80	3.32	2.92	2.65	2.30	1.81
SMD1210L-400-6V	5.92	5.33	4.64	4.00	3.52	3.09	2.83	2.45	1.92
SMD1210L-400-12	5.92	5.33	4.64	4.00	3.52	3.09	2.83	2.45	1.92
SMD1210L-450-6V	6.12	5.39	5.16	4.50	3.85	3.35	3.00	2.36	1.56

SMD1210L-450-12	6.12	5.39	5.16	4.50	3.85	3.35	3.00	2.36	1.56
SMD1210L-500-6V	7.40	6.67	5.80	5.00	4.40	3.87	3.53	3.07	2.40
SMD1210L-500-12	7.40	6.67	5.80	5.00	4.40	3.87	3.53	3.07	2.40
SMD1210L-550-6V	8.14	7.34	6.38	5.50	4.84	4.26	3.88	3.38	2.64
SMD1210L-550-12	8.14	7.34	6.38	5.50	4.84	4.26	3.88	3.38	2.64
SMD1210L-600-6V	8.65	7.91	6.93	6.00	5.23	4.45	4.00	3.63	2.85
SMD1210L-600-12	8.65	7.91	6.93	6.00	5.23	4.45	4.00	3.63	2.85
SMD1210L-650-6V	9.20	8.45	7.45	6.50	5.60	4.65	4.30	3.89	3.00
SMD1210L-650-12	9.20	8.45	7.45	6.50	5.60	4.65	4.30	3.89	3.00
SMD1210L-700-6V	9.84	9.00	7.95	7.00	5.96	4.95	4.50	4.16	3.20
SMD1210L-700-12	9.84	9.00	7.95	7.00	5.96	4.95	4.50	4.16	3.20
SMD1210L-750-6V	10.5	9.65	8.50	7.50	6.40	5.30	4.80	4.45	4.42
SMD1210L-750-12	10.5	9.65	8.50	7.50	6.40	5.30	4.80	4.45	4.42

Electrical Characteristic

Model	V_{max}	I_{max}	I_{hold}	I_{trip}	Pd_{Max}	Maximum Time to Trip		Resistance（Ω）	
	(Vdc)	(A)	(A)	(A)	(W)	Current（A）	Time（S）	Rmin	Rmax
SMD1210L-150-6V	6.0	50.0	1.5	3.0	0.8	8.0	2.0	0.010	0.060
SMD1210L-150-12V	12.0	50.0	1.5	3.0	0.8	8.0	2.0	0.010	0.060
SMD1210L-175-6V	6.0	50.0	1.75	3.5	0.8	8.0	2.0	0.005	0.040
SMD1210L-175-12V	12.0	50.0	1.75	3.5	0.8	8.0	2.0	0.005	0.040
SMD1210L-190-6V	6.0	50.0	1.9	3.8	0.8	8.0	3.0	0.006	0.037
SMD1210L-190-12	12.0	50.0	1.9	3.8	0.8	8.0	3.0	0.006	0.037
SMD1210L-200-6V	6.0	50.0	2.0	4.0	0.8	8.0	3.0	0.006	0.035
SMD1210L-200L-12	12.0	50.0	2.0	4.0	0.8	8.0	3.0	0.006	0.035
SMD1210L-260-6V	6.0	50.0	2.6	5.2	0.8	13.0	2.0	0.003	0.025
SMD1210L-260-12	12.0	50.0	2.6	5.2	0.8	13.0	2.0	0.003	0.025
SMD1210L-300-6V	6.0	50.0	3.0	6.0	0.8	15.0	2.0	0.003	0.02
SMD1210L-300-12	12.0	50.0	3.0	6.0	0.8	15.0	2.0	0.003	0.02
SMD1210L-350-6V	6.0	50.0	3.5	7.0	0.8	17.5	2.0	0.002	0.018
SMD1210L-350-12	12.0	50.0	3.5	7.0	0.8	17.5	2.0	0.002	0.018
SMD1210L-380-6V	6.0	50.0	3.8	7.6	0.8	19.0	2.0	0.002	0.016
SMD1210L-380-12	12.0	50.0	3.8	7.6	0.8	19.0	2.0	0.002	0.016
SMD1210L-400-6V	6.0	50.0	4.0	8.0	0.8	20.0	2.0	0.002	0.014
SMD1210L-400-12	12.0	50.0	4.0	8.0	0.8	20.0	2.0	0.002	0.014
SMD1210L-450-6V	6.0	50.0	4.5	9.0	1.0	22.5	2.0	0.001	0.013
SMD1210L-450-12	12.0	50.0	4.5	9.0	1.0	22.5	2.0	0.001	0.013
SMD1210L-500-6V	6.0	50.0	5.0	10.0	1.0	25.0	2.0	0.001	0.012
SMD1210L-500-12	12.0	50.0	5.0	10.0	1.0	25.0	2.0	0.001	0.012
SMD1210L-550-6V	6.0	50.0	5.5	11.0	1.0	27.5	2.0	0.001	0.011
SMD1210L-550-12	12.0	50.0	5.5	11.0	1.0	27.5	2.0	0.001	0.011
SMD1210L-600-6V	6.0	50.0	6.0	12.0	1.2	30.0	2.0	0.001	0.010

SMD1210L-600-12	12.0	50.0	6.0	12.0	1.2	30.0	2.0	0.001	0.010
SMD1210L-650-6V	6.0	50.0	6.5	13.0	1.2	32.5	2.0	0.001	0.009
SMD1210L-650-12	12.0	50.0	6.5	13.0	1.2	32.5	2.0	0.001	0.009
SMD1210L-700-6V	6.0	50.0	7.0	14.0	1.2	35.0	2.0	0.001	0.008
SMD1210L-700-12	12.0	50.0	7.0	14.0	1.2	35.0	2.0	0.001	0.008
SMD1210L-750-6V	6.0	50.0	7.5	15.0	1.2	37.5	2.0	0.001	0.007
SMD1210L-750-12	12.0	50.0	7.5	15.0	1.2	37.5	2.0	0.001	0.007

Test Procedures And Requirements

Test	Test Conditions	Accept/Reject Criteria
Resistance	In still air at 25℃	$Ri_{min} \le R \le R1_{max}$
Time to Trip	Specified current，V_{max}，25℃	$T \le_{Maximum}$ Time to Trip
Hold Current	30min，at IH ，25℃	No trip
Trip Cycle Life	V_{max}，I_{max}，100 cycles	No arcing or burning
Trip Endurance	V_{max}，1 hour	No arcing or burning

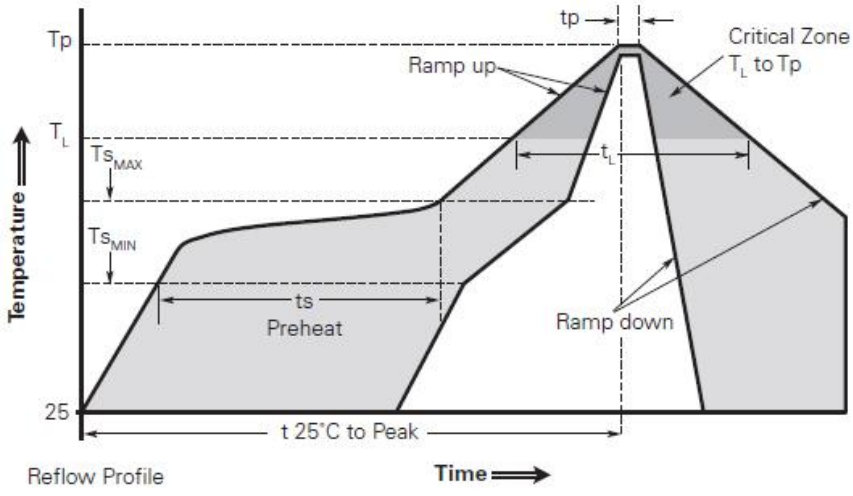
Physical Characteristics

Terminal Materials	Tin-Plated Nickle-copper
Soldering Zone	Meets EIA specification RS 186-9E and ANSI/J-STD-002 Category 3.

Physical Characteristics and Environmental Specifications

Test	Conditions	Resistance change
Passive aging	85℃,1000hours	±10%
Humidity aging	85℃/85%RH.1000 hours	±5%
Thermal shock	MIL-STD-202,Method 107G+85℃/-40℃,20times	-30% typical resistance change
Resistance to solvent	MIL-STD-202,Method 215	no change
Vibration	ML-STD-883C,Test Condition A	No chage

Solder Reflow Conditions



Profile Feature	Pb-Free Assembly
●Average ramp up rate($T_{S_{MAX}}$ to T_P)	3℃/Second max
Preheat	
●Temperature min ($T_{S_{MIN}}$)	150℃
●Temperature max ($T_{S_{MAX}}$)	200℃
●Time($T_{S_{MIN}}$ to $T_{S_{MAX}}$)	60-120 Seconds
Time maintained above:	
●Temperature(T_L)	217℃
●Time(T_L)	60-150 Seconds
●Peak/Classification temperature(T_P)	260℃
Time within5℃ofactual peak temperature	
●Time(T_P)	30 Seconds max
●Ramp down rate	3℃Second max
●Time 25℃ to peak temperature	8 minutes max

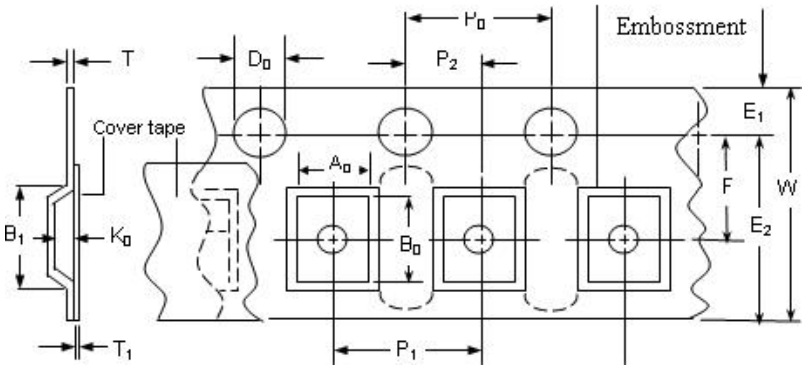
- Recommended reflow methods: IR, vapor phase oven, hot air oven, N2 environment for lead-free.
- Devices are not designed to be wave soldered to the bottom side of the board.
- Recommended maximum paste thickness is 0.25mm (0.010inch).
- Devices can be cleaned using standard industry methods and solvents.
- Soldering temprature profile meets RoHs leadfree process.

Note： All temperatures refer topside of the package.measured on The package body surface
Notes: If reflow temperatures exceed the recommended profile, devices may not meet the performance requirements

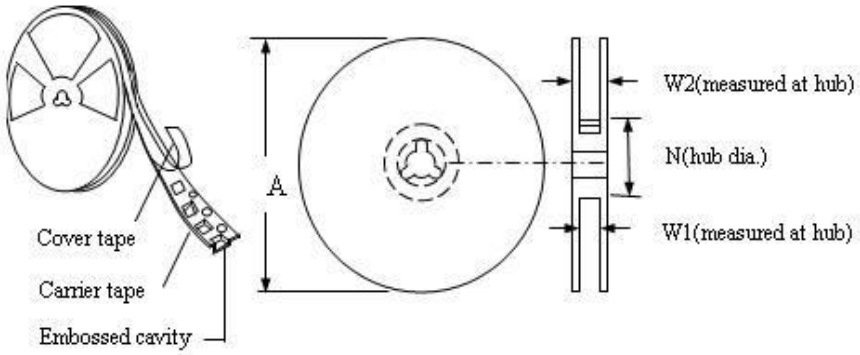
Tape Specifications and Reel Dimensions

Covering Specifications EIA 481-1	
W	8.0± 0.3
P0	4.0 ± 0.10
P1	4.0 ± 0.10
P2	2.0 ± 0.05
A0	2.82± 0.10
B0	3.46± 0.10
D0	1.55 ± 0.05
F	3.5 0± 0.05
E1	1.75 ± 0.10
T	0.25 ± 0.10
Leader min.	390
Trailer min.	160
Reel Dimensions	
A	178±1.0
N	59±1
W1	8.5+1.0/-0.2
W2	12.0±1

EIA Tape Component Dimentions



EIA Reel Dimentions



Electrical Specifications:

I_H=Hold current:maximum current at which the device will not trip at 25℃ still air.

I_T=Trip current:minimum current at which the device will nalways at 25℃ still air.

V_{max}=Maximum voltage device can withstand without damage at rated current.

I_{max}=Maximum fault current device can withstand tithout damage at rated voltage.

T_{trip}=Maximum time to trip(s) at assigned current.

P_d=Typical power dissipation:typical amount of power dissipated by the decice when in state air environment.

R_{min}=Minimum device resistance at 25℃ prior to tripping.

R_{max}=Maximum device resistance at 25℃ prior to tripping.

Warning:

PPTC devices are intended for protection against occasional over-current or over-temperature fault conditions,and should not be used when repeated fault conditions are anticipated.Operation beyond maximum tatings of improper use may result in device damage and possible electrical arcing and flame.

Notes：

The specification is intended to present application,product and technical data to assist the user in selecting PPTC circuit production devices,However,users should imdependently evaluate and test the suitability of each product.YINT makes on warranties as to the acduracy or completeness of the information and disclaims any liatility resulting form its use,YINT’s only obligations are those im the YINT Standard Rerms and Conditions of Sale and in no case will YINT be liable for any incidental,imdirect,or consequential damages arising from the sale,resale,or misues of its products.YINT reserves the right to change of update,without notice,any information contained in this specification.